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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/826,497 | 04/16/2004 | Yoo-Sok Saw | 2060-3115 | 1342 |
| 35884 7590 04/11/2008 LEE, HONG, DEGERMAN, KANG & SCHMADEKA 660 S. FIGUEROA STREET Suite 2300 LOS ANGELES, CA 90017 | | | | |
| EXAMINER | | | | |
| LAI, DANIEL | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 2617 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/826,497

Applicant(s)

SAW, YOO-SOK

Examiner

DANIEL LAI

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-6, 8-16, 18-25 and 27 is/are rejected.
- 7) ☒ Claim(s) 7, 17 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Response to Arguments

Applicant's arguments, see p. 7-12, filed 23 January 2008, with respect to the rejection(s) of claim(s) 1 and 21 under 35 USC 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Lee et al. (US 2002/0131379 A1, hereinafter Lee) in view of Burke et al. (US 5,793,772, hereinafter Burke).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-6, 8-16, 18-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 2002/0131379 A1, hereinafter Lee) in view of Burke et al. (US 5,793,772, hereinafter Burke).

Regarding claims 1, 11 and 21, Lee discloses a method and an apparatus for synchronizing uplink and downlink transmissions in a terminal of a mobile communication system (Abstract). Lee discloses a receiving unit receiving and converting an RF signal (paragraph 44, where Lee discusses UE receiving signal from Node B, and inherently has to covert the received signal for further processing). Lee discloses a processing unit recognizing a construction of uplink time slots and downlink time slots from the converted RF signal (paragraph 44, where Lee discusses UE performs synchronization with the Node B depending on the received signal). Lee discloses a detecting unit detecting a current switching point from the converted RF signal (paragraph 44, where Lee discusses determining delay value T1 and calculates a transmission point) and determining a new switching point based on the detected current switching point and the recognized construction of uplink time slots and downlink time slots (paragraph 45, where Lee discusses determining a second transmission point). Lee discloses a transmitting unit transmitting a data signal (paragraphs 44, where Lee discusses UE transmits signal the Node B). Lee discloses a switching unit switching between the receiving unit and the transmitting unit according to the new switching point (paragraph 15, where Lee discusses NB-TDD CDMA mobile communication system and switching point, paragraphs 44-45, where Lee discusses transmission point). Lee discloses transmitting data with delay based on the new switching point and the delay is related to distance, but does not explicitly disclose such delay is variable. In an analogous art, Burke discloses transmitting data with a variable delay to adjust for

different distance (col. 6, line 65-col. 7, line 7). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Lee by determining a new switching point with a variable delay as disclosed by Burke to the synchronization method and apparatus for the purpose of using variable delay to provide proper timing synchronization between an uplink channel and a downlink channel when distance between user equipment and access point varies and therefore signals transmitted from subscribers can be sent at a proper timing so that they do not overlap time slots and cause interference.

Regarding claims 3, 13 and 22, Lee further discloses the processing unit controls the transmitting unit to delay the transmitted data signal such that a transmission point of the data signal corresponds to a switching point for uplink transmission (paragraphs 44-45, where Lee discusses UE transmit signal with delay).

Regarding claims 4, 14 and 23, Lee further discloses the transmitting unit selects a data signal to be delayed and adjusts a delay time of the signal (paragraphs 44-45).

Regarding claims 5, 12, 15 and 25, Lee in view of Burke discloses the switching unit performs switching at a variable time interval according to the switching (see above, where Lee discloses switching with delay, and Burke discloses variable delay).

Regarding claims 6 and 16, Lee further discloses the detecting unit controls the switching unit to switching between the receiving unit and the transmitting unit (paragraphs 44-45).

Regarding claims 10 and 20, Lee further discloses the mobile communication system is TDD-based (Abstract).

Regarding claim 27, Lee further discloses counting the number of uplink time slots and downlink time slots in the overall time slots of an uplink/downlink channel (paragraph 44, where Lee discusses synchronization).

Regarding claims 8, 9, 19, 19 and 24, Lee in view of Burke discloses the limitations of claims 1, 11 and 21 as applied above. Lee and Burke fail to expressly disclose the detecting is hardware-based or software-based. Examiner takes Official Notice that implementing detecting unit in either hardware or software was well known in the art at the time of the invention. For instance, Applicant's disclosure discloses in the Background a software-based modem and a hardware-based modem (paragraphs 13-14). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Lee and Burke to implement the detecting unit as either hardware or software as an engineering design choice.

Allowable Subject Matter

Claims 7, 17 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gabbard (US 3562432), Oksala (US 6477151 B1) and Izumi (US 6,577,641 B1) disclose uplink/downlink synchronization.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL LAI whose telephone number is (571)270-1208. The examiner can normally be reached on Monday – Thursday, 9:00 a.m. – 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. L./
Examiner, Art Unit 2617

/Lester Kincaid/
Supervisory Patent Examiner, Art Unit 2617